AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A process for manufacturing bake hardening steel sheet comprising:

- the smelting of a steel, the composition of which comprises, expressed in % by weight:

$$\begin{aligned} 0.03 \leq C &\leq 0.06 \\ 0.50 \leq Mn &\leq 1.10 \\ 0.08 \leq Si &\leq 0.20 \\ 0.015 \leq Al &\leq 0.070 \\ N &\leq 0.007 \\ Ni &\leq 0.040 \\ Cu &\leq 0.040 \\ P &\leq 0.035 \\ S &\leq 0.015 \\ Mo &\leq 0.010 \\ Ti &\leq 0.005 \end{aligned}$$

it being understood that the steel also contains boron in an amount such that:

$$0.64 \leq \frac{B}{N} \leq 1.60$$

the balance of the composition consisting of iron and impurities resulting from the smelting;

- the casting of a slab of this steel, this slab then being hot rolled in order to obtain a sheet, the end-of-rolling temperature being above that of the Ar3 point;
- the coiling of said sheet at a temperature of between 500 and 700°C; then
- the cold rolling of said sheet with a reduction ~~30~~-ratio of 50 to 80%;

- a continuous annealing heat treatment which is carried out for a time of less than 15 minutes; and

- a skin pass which is carried out with a reduction ratio of between 1.2 and 2.5%,

wherein the continuous annealing heat treatment comprises a reheat of the steel until it reaches a temperature of between 750 and 850°C, isothermal soak followed by a first cooling operation comprising a slow first part carried out at a rate of less than 10°C/s, followed by a rapid second part carried out at a rate of between 20 and 50°C/s.

2. (currently amended): The process as claimed in claim 1, wherein said continuous annealing heat treatment comprises:

~~a reheat of the steel until it reaches a temperature of between 750 and 850°C;~~

~~an isothermal soak;~~

- the first cooling operation down to a temperature ~~5~~ of between 380 and 500°C; and

- an isothermal soak; and then

- the second cooling operation down to the ambient temperature.

3. (canceled).

4. (previously presented): The process as claimed in claim 1 or 2, wherein, in addition, the manganese content and the silicon content of the steel are such that:

$$4 \leq \frac{\%Mn}{\%Si} \leq 15.$$

5. (previously presented): The process as claimed in claims 1 or 2, wherein, in addition, the manganese content of the steel is between 0.55 and 0.65% by weight and the silicon content of the steel is between 0.08 and 0.12% by weight.

6. (previously presented): The process as claimed in claims 1 or 2, wherein, in addition, the manganese content of the steel is between 0.95 and 1.05% by weight and the silicon content of the steel is between 0.16 and 0.20% by weight.

7. (previously presented): The process as claimed in claims 1 or 2, wherein, in addition, the nitrogen content of the steel is less than 0.005% by weight.

8. (previously presented): The process as claimed in claims 1 or 2, wherein, in addition, the phosphorus content of the steel is less than 0.015% by weight.

9. (currently amended): A bake hardening sheet obtained by the process as claimed in claim 1 or 2, wherein the sheet has a composition comprising, expressed in % by weight:

$$
\begin{aligned}
0.03 \leq C &\leq 0.06 \\
0.50 \leq Mn &\leq 1.10 \\
0.08 \leq Si &\leq 0.20 \\
0.015 \leq Al &\leq 0.070 \\
N &\leq 0.007 \\
Ni &\leq 0.040 \\
Cu &\leq 0.040 \\
P &\leq 0.035 \\
S &\leq 0.015 \\
Mo &\leq 0.010 \\
Ti &\leq 0.005
\end{aligned}
$$

it being understood that the steel also contains boron in an amount such that:

$$0.64 \leq \frac{B}{N} \leq 1.60$$

the balance of the composition consisting of iron and impurities and has a yield strength of between 260 and 360 MPa, a tensile strength of between 320 and 460 MPa, a BH2 value of greater than ~~40~~ 60 MPa and a yield plateau of less than or equal to 0.2%.

10. (canceled).

11. (currently amended): A part that can be obtained by cutting a blank from a hardening sheet as claimed in claim 9 ~~or 10~~, said blank then being painted and baked at less than 200°C.